

**METHOD AND SYSTEM FOR SELECTIVELY COUPLING A
CONDUCTIVE MATERIAL TO A SURFACE OF A SEMICONDUCTOR
DEVICE**

ABSTRACT OF THE DISCLOSURE

A method for selectively coupling a conductive material
5 (60) to a contact region (32) of a semiconductor device (8)
includes bombarding residual material (40) coupled to the
contact region (32) with inert ions (44) at a first position
associated with an integrated cluster tool (90) to increase the
reactive surface area of the residual material (40). Hydrogen
10 ions (46) are introduced at the first position for reaction
with the residual material (40) to remove the residual material
(40) from the contact region (32). The semiconductor device
(8) is transferred in situ from the first position to a second
position associated with the integrated cluster tool (90). The
15 conductive material (60) is selectively coupled to the contact
region (32) at the second position using chemical vapor
deposition.